Pocket Notebook
PN-31-03-16

This notebook dates from March 1931. The pocket notebook contains notes by Thomas A. Edison relating to rubber research. There are notes about urine tests. Filed separately are five loose pages containing notes about chemical experiments for rubber research. The notebook was found in Thomas A. Edison's desk at Glenmont.

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—ONE OPERATION

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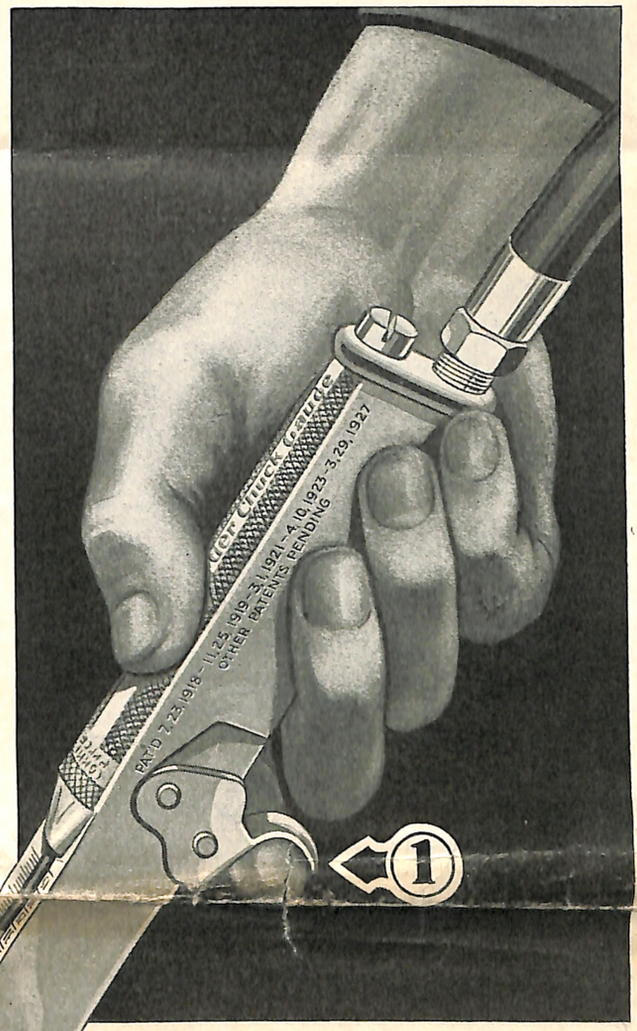
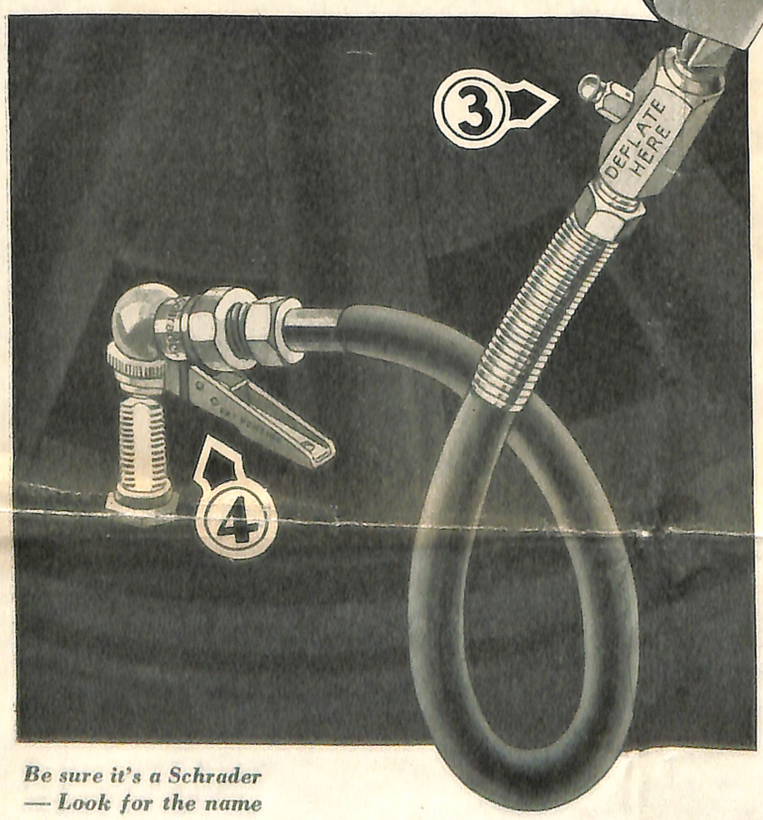


THE SCHRADER CHUCK-GAUGE



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The following papers have been published in the "IRI Transactions" Volume 6.

"The Desirable Properties of Synthetic Compositions for Industrial Purposes," W. D. Owen, A.M.I.E.E.
"A Review of the Contributions of X-ray to Rubber," C. W. Shacklock, M.Sc., A.I.C., A.I.R.I. (Sc.)
"The Influence of White Factice on the Vulcanisation of Accelerated Rubber Stocks," W. H. Bodger, B.Sc., and H. C. Baker, B.Sc.
"Vibration of Buildings and the Possibility of Rubber as a Useful Shock Absorber," H. C. Young, M.I. Mech. E., A.M.I.E.E., F.I.R.I.
"Some Aspects of Standardisation," B. D. Porritt, M.Sc., F.I.C., F.R.S.E., F.I.R.I.
"The Evaluation of Raw Rubber," G. Martin, B.Sc., A.I.C., F.I.R.I.
"The Use of Concentrated Latex in the Rubber Industry," J. H. Carrington, B.Sc., A.I.R.I. (Sc.)
"A Comparison of English and American Technique Over the Last Decade," E. H. Wallace, F.I.R.I.
"Plant Used in the Manufacture of Synthetic Resins," A. Fraser.
"Synthetic Resins," Dr. E. E. Walker and E. A. Bevan, B.Sc.
"Rubber Colours," G. F. Thompson, A.I.R.I. (Sc.)
"Some Problems in Sponge Rubber Manufacture," S. A. Brazier, M.Sc., F.I.C., F.I.R.I.
"Patents in the Rubber Industry," A. V. Dwyer.
"Wheels and Rims as Applied to Transportation," J. Wright.
"The Elimination and Utilisation of Waste," C. P. Hawkins.
"The World's Rubber Supplies," G. Rae.
"Tyres from the Motor Manufacturers' Standpoint," C. E. F. Engelbach.
"The Manufacture and Use of Rubber Goods in the Far East," S. G. Ball, B.Sc., A.I.R.I. (Sc.)
"Rubber in the Sports Industry," J. W. C. Ferrebe.
"Some Notes on Rubber Factory Layout," W. Cliffe.
"Rubber Works Accountancy and Costing," C. Solomon.
"Difficulties in the Manufacture of Mechanical Goods," G. H. Burton and C. R. Quartley.
"Impurities of Importance to the Rubber Industry," Dr. D. F. Twiss.
"The Early Days of the Rubber Industry," B. D. Porritt, M.Sc., F.I.C., F.R.S.E., F.I.R.I.
"Production Economy in the Rubber Factory," E. P. Smith.
"Preservation of Rubber Articles by Surface Treatment," T. R. Dawson, M.Sc., F.I.C., F.I.R.I.
"Mastication—A Preliminary Study," F. H. Cotton, B.Sc., A.I.C., A.I.R.I. (Sc.)
"The Absorption by Rubber of Shocks and Vibrations," J. Morrison, B.Eng., A.I.R.I. (Eng.)
"Experiments on the Electro-deposition of Rubber from Latex," John G. Mackay.
"Everyday Inventions in Tyres and Wheels," W. Bond, F.I.R.I.
"Some Factors Influencing the Electrical Properties of Synthetic Resin Moulding Materials," E. A. Bevan B.Sc. and Dr. E. E. Walker.
"Chemical Aspects of Vulcanisation with and without Sulphur," Dr. A. Van Rossem.
"The Surface Tension of Rubber Solutions," C. W. Shacklock, M.Sc., A.I.C., A.I.R.I. (Sc.)
"Re-inforcement," F. H. Cotton, B.Sc., A.I.C., A.I.R.I. (Sc.)

The above papers, together with discussions, appear only in the "I.R.I. Transactions," the official journal of the Institution of the Rubber Industry.

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W. F. V. Cox, Secretary, Institution of the Rubber Industry,

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Di Sodium phosphate

See p 9 washings

Mono Sodium phosphate

Citric Acid. preserve

Chlorophyll from

Methyl Alc & NaOH

Petroleum Ether

p. 45 Anhydrous NaOH pellets

Whatman

ditto p X 46-

1 Aceton Tar 3 grm
2 dissolve in 90% Alcohol
3 1 grm lime much in Tar cup
4 filter after 2 hours extract
in Soxhlet

Bark some Aceton Fraxinus Extract
~~Extract~~ in 90% alcohol
with 2 grms of Barium Ott

Drip some mouth

get some dilute Chlorophyl in Alcohol ditto Alcohol ditto Benzol

Throw tiny of any of Eastmans Chemicals will precipitate anything by using 2 or 3 drops in smallest ~~bottle~~ Vial

---

Melt Benzol Tar

+see if ~~2 or 3 drops of~~ 2 or 3 drops of Eastmans Chemicals will act if small piece tar in smallest Vial will do anything

---

80
5.
00
40
21
80

10

Urine Schmerkas test -

24th June 1931

Volume 18 hours

1375 c c

46½ fluid oz

Sugar glukose. 1.48%

Albumen .054

Oct 24 1927

Albumen .074

Sugar .055

Jany 1928

Albumen 066

Sugar 036

LAST ENTRY IN NOTEBOOK

Urine Schmerkas test -

24th June 1931

Volume 18 hours

1375 c c

46½ fluid oz

Sugar glucose. 1.48%

Albumen .054

Oct 24 1927

Albumen .074

Sugar .055

Jany 1928

Albumen 066

Sugar 036

Rugosa April 20 1929. old stuff in powder w Tu Kaya

80% alcohol 20% Benzol
3 grms Rugosa tar;
in 3 doses heated 30 min
took out 1.912 grms of
impurities
Alcoholic Sol of NaOH.
3% NaOH. took out
1.79 Mdg - leaving
909 Mdg rubber
Rubber tacky Not Elastic

Dally w Vulcanizing at
by Firestone mass Lacks
softness Except 40
Mdg Sulphur wasted
of 20 Mdg
after 1½ hours Vulcanizing
at 300°F in bottle in Oil

It is no more sticky than
Guayule - and has very
strong Short Elastically
like Guayule This is
the best yet It didn't
stroll my bottle, + don't
need Talc—

It seems working the Tar
is more favorable than
Old way working powder
with 80 alcohol + 20
Benzol + then dissolving
in Benzol-

Its weight after
Vulcanizing is
1.0779.

190 909
887 887
22

22 Mdg heavier poly NaOH
not all out

Borden Leavenworth
Cup in 1 or 3 Nabb
ve 100% alcohol does
not make film elastic
Like it does several alka
plasts in our Record books
all were ephemeral by
Acetone + Ben Benzol
CCl_4 - Dioxane & Thylene
but with dropping
of Acetone + substituting
50 Alcohol + 20 Benzine
it is better but it
dont make an elastic
film - S_2Cl_2 or Cone
Hcl makes good mold
will have to get other
less favorable plants
than Nolandago

Make several cups
with Gunpulc with Reg
acetone + some with
50 alcohol 20 Benzol

Try our beg bush of
Carissa

Bush 5 Oleanders
op Lab at home

Test cups of Gunpulc
against our ephedrals afsolvango

Proteins for test
Gluten
Casein
Soap
Albumin
Gelatin

Try 6 drops Conc HCl
in Alcohol 80 Benzol 20
+ variations

Dissolve cup in
Sodium + add
Chloride Calcium
This causes double
decomp making
Chloride Soda +
Resinate of lime
from resin in the
rubber -

Perhaps the gob from Tar
(Benzol absent) that didn't
Melt that was worked
in Concentrated HCl.
has the HCl combined with
the rubber making this
whole unworkable in
Benzol — Perhaps with
working it in Alcoholic
Soda hot or even Cold
this combination could
be torn away leaving
good rubber — This
Could be done at
Mill * if it don't melt
or flow at 230°F
it would be neutralized
by flowers of sulphur

A good test for vulcanization
that got in process in
Steam Bengal for 3 days
about then pulled off
Bengal added fresh hot
Bengal until no more
dissolved dry + weigh

I think we are not
working right We use
too strong soln of
S_2Cl_2 Hel the Cl
all used up in making
some particles over
Vulcanized (what we
wanted is 1/3 thickness
of the whole of the
rubber that some
overvulcanized some
not Vulcanized at all
+ when the got
should be pressed

from resin + Chlorophyl of impurities -
by keeping several
Solvents + working
up Mentor um

Acetate of Lead
Coagulated Rubber

See pt 1 3rd Emp Work on Chlorophylls

March 27

Conc HCl used on Dichloro Cups Acetone for powder 1st + 2d Chloroethylene 1st ach to give a very good Elastic Rubber but sticky after vacuum HCl out but still good

I think the sticky State of all Leaf rubbers when coagulated is due either to a low state rubber hydro Carbon that will not Coagulate, If this is true the only way is to distill it but at 300 to 400° Hahn in vac type oil March 27/31

Try Mild Oxidation before S_2Cl_2 also after Coagulation

1st Sup Obs Watts p 443
Chlorophyll is composed
of 2 substances
Phyllcyan blue stuff
phyllosanthin yellow
Can be separated by
mix of Ether & HCl
The yellow substance
dissolving in the Ether
& the blue in Ether
agitated —
Chlorophyll is turned
yellow by alkalis
Green by acids

~~Phyllosanthin yellow~~
~~dissolves in~~

Chlorophyll dissolves
in Baryta water
On boiling the precipitate
with Alcohol
uncombined phyllosanthin
is dissolved the ether
stuff is separated by

H_2SO_4 & boiled out with
Alcohol
Phyllosanthin is a
neutral substance
Sol in Alcohol & Ether

Phyllocyan dissolves
in Alk or Ether
its salts are brown &
green those of alkalies
are sol in water

Stokes says there are
4 bodies instead of 2
but all are decomposed
by acids

Zinc ox dissolves in
Potash & Etherate the
Oxidation of the
Brown substance
gives splendid green
Color, as a dye its
ng sun fades it

Think one drop of S_2Cl_2
with 40 mdg Sulphur
ground in ball mill durin
then 80 mdg Zn O. ground up
thy mixed as follows
1st 6 cc Benzol dissolve rubber
down with in Cup
in 6 cc Benzol dissolve
Then one drop of S_2Cl_2
40 mdg Sulfur - mix well
Then put in 80 mdg
Zinc Oxide - ground mix
Then dry Gob in Vac
finally Vulcanize
in Rubber moulds
Sole type with rubber
pad

old work CON p 922
Extract Chlorophyl several days
with Ether
Then evap to dryness then
treating residue with
boiling alcohol in which
a small quantity of
Milk of lime This
precipitates all the
Coloring matter
while alcohol reclaims
a quantity of fat which
is mixed with it
The Chlorophyl is
seperated from the
the lime by HCl in
Ether which dissolves
the Chlorophyl which
floats to top

Dry Acetone also

The resins etc left in Rubber from Solvents is the sticky ingredient Especially Chloroph chlorophyl groups are Dyes

This can probably be washed out on Creping rolls after Vulcanization as the rubber is not on the least sticky —

No it will not wash out I is neutral the other is an acid

3346

Fort Myers
March 16/1931

If this book is
lost will pay
10 dollars for its
return by finder

Thos A Edison

EDIS 223928